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ON
MERCURIAL ANTISEPTIC SOLUTIONS

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THE ACTION OF RUBBER ON MERCURIAL ANTISEPTIC SOLUTIONS.

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(From the Wellcome Physiological Research Laboratories.)

UNEXPECTED contamination of several jars of a culture-medium was traced to some red rubber stoppers which had been washed and boiled and then kept for some days in 1:1000 potassium mercuric iodide solution, which was exposed to aerial contamination. An examination of this solution showed that it had very greatly diminished antiseptic properties. Not only did a mixture of equal volumes of the solution and broth support the growth of *Staphylococcus* but living organisms were actually present in it. These observations were repeated with a second solution of pure mercuric iodide and potassium iodide and other samples of red rubber, and their confirmation led to the investigation of the action of several kinds of rubber upon potassium mercuric iodide solutions.

The absorption of mercury from 1:1000 biniodide solution was examined quantitatively in the case of the following four samples. For their description we are indebted to the manufacturer.

Sample 1. Fine hard Para rubber unvulcanised. In order to get it into sheet form it was necessary to soften it by coal-tar naphtha. It is pure rubber and contains no filling of any kind, and as it is not vulcanised it retains its solubility in chloroform, benzene, etc. It is met with as a manufactured article when rubber is required with its adhesive properties unimpaired.

Sample 2. This is exactly the same as the above, except that it has been vulcanised by the "cold-cure process," *i.e.* it has been treated with carbon disulphide and sulphur chloride. The best quality black rubber surgical goods, surgical gloves, catheters, etc., are made of this material.

Sample 3. This is the same as 1, except that it has been vulcanised by "steam-cure," *i.e.* sulphur has been incorporated and the whole heated to 280° F.

Sample 4. This is the ordinary red rubber from which rubber stoppers and tubing are made. It resembles 3 but contains antimony sulphide and sulphur. Some good quality red rubber surgical goods contain vermilion and are cold-cured.

Experimental. The samples were circular pieces of sheeting 20 cms. in diameter. Each piece was superficially cleansed by scrubbing with sand and soap, rinsed in distilled water and transferred to a stoppered bottle containing 0.55 gm. mercuric iodide and 0.45 gm. potassium iodide dissolved in 1 litre of water. From time to time samples of 25 c.cs. of the contained liquid were removed from each of the four bottles and at the end of 34 days the mercury content of each of the samples was determined. The results are expressed in the following diagram.

